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Historia Mathematica 34 (2007) 241–258

HISTORIA MATHEMATICA

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Abstracts

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Available online 2 March 2007

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In order to facilitate reference and indexing, entries are given abstract numbers which appear at the end following the symbol #. A triple numbering system is used: the first number indicates the volume, the second the issue number, and the third the sequential number within that issue. For example, the abstracts for Volume 20, Number 1, are numbered: 20.1.1, 20.1.2, 20.1.3, etc.

For reviews and abstracts published in Volumes 1 through 13 there are an *author index* in Volume 13, Number 4, and a *subject index* in Volume 14, Number 1. An online index of all abstracts that have appeared in *Historia Mathematica* since 1974 will soon be available at http://historiamathematicaabstracts.questu.ca/.

The initials in parentheses at the end of an entry indicate the abstractor. In this issue there are abstracts by Víctor Albis (Bogotá), Francine Abeles (Union, NJ), Elena Marchisotto (Northridge, CA), Gary Stoudt (Indiana, PA), Glen Van Brummelen (Garibaldi Highlands, BC), Laura Martini, Kim Plofker, and Sloan Evans Despeaux.

General

Adler, Stephen L. *Adventures in Theoretical Physics. Selected Papers with Commentaries*, World Scientific Series in 20th Century Physics 37, Hackensack, NJ: World Scientific, xv+744 pp. This book is a collection of reprinted papers mainly on high-energy neutrino processes, current algebras, soft pion theorems, sum rules, and perturbation theory anomalies that the author supplements in this edition with detailed historical commentaries. (LM) #34.2.1

Ambrosio, Luigi. *See* #34.2.8.

Balaban, A.T. *See* #34.2.24.

Barbut, Marc. Machiavel et la praxéologie mathématique [Machiavelli and the mathematical decision theory], in #34.2.20, pp. 43–56. #34.2.2

Barbut, Marc. *See also* #34.2.17.

Bazzani, Armando. *See* #34.2.9.

0315-0860/2007 Published by Elsevier Inc.
doi:10.1016/j.hm.2007.02.003

Berestycki, Henri. La conquête du hasard [Conquering chance], in #34.2.7, pp. 21–52. #34.2.3

Bianchini, Marco. La méthode géométrique au service du pouvoir en Italie aux XVIe et XVIIe siècles [The geometrical method in the service of power in Italy of the 16th and 17th centuries], in #34.2.20, pp. 131–143. #34.2.4

Brian, Éric. Peut-on vraiment compter la population? [Can we really count the population?], in #34.2.20, pp. 145–161. #34.2.5

Cardona, Manuel; and Marx, Werner. The posthumous impact of Paul Drude, *Annalen der Physik* (8) **15** (7–8) (2006), 461–468. The authors analyze the long-term impact of Paul Drude's works by bibliometric methods. (LM) #34.2.6

Centro di Ricerca Matematica Ennio de Giorgi (CRM), ed. *Matematica, cultura e società 2004* [Mathematics, culture, and society 2004], Edizioni della Normale, Pisa, 2005, vi+155 pp. Articles in this collection concerning the history of mathematics are listed here separately as #34.2.3; #34.2.22; #34.2.94; #34.2.108; and #34.2.141. (SED) #34.2.7

Dal Maso, Gianni. *See* #34.2.8.

De Giorgi, Ennio. *Selected papers*. Luigi Ambrosio, Gianni Dal Maso, Marco Forti, Mario Miranda, and Sergio Spagnolo, eds., Berlin: Springer-Verlag, 2006, x+890 pp. This book is a collection of selected papers by mathematician Ennio De Giorgi (1928–1996). See the review by Roman Murawski in *Zentralblatt MATH* 1096.01015. (LM) #34.2.8

Forti, Marco. *See* #34.2.8.

Fréchet, Maurice. *See* #34.2.17.

Freguglia, Paolo. *Geometria e numeri. Storia, teoria elementare e applicazioni del calcolo geometrico* [*Geometry and Numbers. History, Elementary Theory and Applications of Geometric Calculus*]. With additional material by Armando Bazzani, Turin: Bollati Boringhieri, 2006, 145 pp. Explains the elementary theory, historical development, and current applications of algebraic entities such as complex numbers, quaternions, and matrices with special reference to their use in geometry. (KP) #34.2.9

Grünbaum, Barnko. What symmetry groups are present in the Alhambra? *Notices of the American Mathematical Society* **53** (6) (2006), 670–673. This paper discusses the question of which of the 17 wallpaper groups are represented in the ornamentation of the Alhambra. See the review by Aloysio Janner in *Zentralblatt MATH* 1098.01013. (LM) #34.2.10

Gu, Hongfang. *See* #34.2.31; #34.2.32; #34.2.33; #34.2.34; and #34.2.35.

Guilbaud, Georges Th. La théorie des jeux. Contributions critiques à la théorie de la valeur [Game theory. Critical remarks to the theory of value], in #34.2.20, pp. 9–42. #34.2.11

Gumbel, E.J. Statistique et lutte des classes. Réflexion programmatique [Statistics and class warfare. Programmatic consideration], in #34.2.20, pp. 189–210. #34.2.12

Hellman, Hal. *Great Feuds in Mathematics: Ten of the Liveliest Disputes Ever*, New York: Wiley, 2006, hardcover, 250 pp. This book discusses some of the most (in)famous mathematical disputes, including those surrounding the cubic equation, the calculus, and foundational issues. See the review by Christopher E. Barat at *MAA Online* [http://www.maa.org/reviews/GreatFeuds.html]. (SED) #34.2.13

Herzt, Sébastien. Statistique de l'état et statistique mathématique. Un texte-manifeste remarquable d'Emil Julius Gumbel: "Statistique et lutte des classes" (1928) [Official statistics and mathematical statistics. A remarkable text-manifesto of Emil Julius Gumbel: "Statistics and class warfare" (1928)], in #34.2.20, pp. 163–187. #34.2.14

Klein, D. J. *See* #34.2.24.

Korchagin, Anatoly B.; and Weinberg, David A. Quadric, cubic and quartic cones, *The Rocky Mountain Journal of Mathematics* **35** (5) (2005), 1627–1656. Historical survey on the classification of affine real plane quadric curves,

cubic curves (Newton), and quartic curves (Gudkov) as the classification of plane sections of quadric, cubic, and quartic cones in the real affine 3-space. Also discusses the classification of the unions of irreducible real cubic curves with their asymptotes. See the review by Eugenii Shustin in *Mathematical Reviews* 2206027 (**2006k**:14001) for other details and a list of the article's 42 references. (EM) #34.2.15

Kunitzsch, Paul. Zur Geschichte der "arabischen" Ziffern [On the history of "Arabic" numerals], *Sitzungsberichte der Bayerische Akademie der Wissenschaften. Philosophisch-Historische Klasse* (2005) (3), 39 pp. The history of "Arabic" numerals including recent research results by the author, Charles Burnett, and Menso Folkerts. See the review by Jens Høyrup in *Mathematical Reviews* 2209464 (**2006k**:01003) for other systems discussed in the article. (EM) #34.2.16

Lévy, Paul; and Fréchet, Maurice. *50 ans de correspondance en 107 lettres* [50 Years of Correspondence in 107 Letters]. Marc Barbut; Bernard Locker; and Laurent Mazliak, eds., Collection Histoire de la Pensée, 2004, 315 pp. This book gathers the correspondence, consisting of 107 letters written in the period 1918–1965, from Paul Lévy (1886–1971) to Maurice Fréchet (1878–1973). It includes an introduction on the contents of the letters as well as biographies of Lévy and Fréchet. See the review by Roman Duda in *Zentralblatt MATH* 1096.01011. (LM) #34.2.17

Locker, Bernard. *See* #34.2.17.

López Pellicer, Manuel. Orient and Occident in the development of mathematics, *Revista de la Real Academia de Ciencias Exactas, Físicas y Naturales* **99** (1) (2005), 1–26. From the review by V.N. Salii in *Zentralblatt MATH* 1099.01003: "A historical survey of the development of mathematics in ancient Egypt, Babylonia, Greece, China and India, in Arabian East (more closely), in medieval Europe (briefly). The text is well illustrated with portraits of the main protagonists. Bibl. 53 items." (VA) #34.2.18

Maeyama, Y. On the extreme lunar velocities, *Archive for History of Exact Sciences* **60** (3) (2006), 269–283. The author discusses the problem of determining accurately the apparent extreme angular velocities of the Moon as observed from the Earth. See the review by Andrea Bréard in *Zentralblatt MATH* 1097.01002. (LM) #34.2.19

Martin, Thierry, ed. *Mathématiques et action politique. Études d'histoire et de philosophie des mathématiques sociales* [*Mathematics and political actions. Historical and philosophical studies on social mathematics*], Paris: Institut National d'Études Démographiques, 2000, xiv+225 pp. This volume includes papers from a conference held at the Department of Philosophy of the Université de Franche-Comté. Items in this collection with historical content are listed separately as #34.2.2; #34.2.4; #34.2.5; #34.2.11; #34.2.12; #34.2.14; and #34.2.21. (LM) #34.2.20

Martin, Thierry. Mathématiques de l'action et réalité empirique [Mathematics of action and empirical reality], in #34.2.20, pp. 101–111. #34.2.21

Marx, Werner. *See* #34.2.6.

Mazliak, Laurent. *See* #34.2.17.

Miranda, Mario. *See* #34.2.8.

Mugnai, Massimo. Adventures of the forms of logic: Logic and mathematics from Leibniz to Frege [in Italian], in #34.2.7, pp. 117–140. An overview of the history of logic centered around Leibniz, showing how Viète, Boole, Gregory, De Morgan, and Peirce contributed to the Leibnizian goal of "mathematizing" logic, and how Frege carried forward Leibniz's "characteristica universalis." See the review by Ignacio Angelelli in *Mathematical Reviews* 2216637 for a description of the five sections into which the article is divided. (EM) #34.2.22

Naveira, A.M. The Riemann curvature through history, *RACSAM. Revista de la Real Academia de Ciencias Exactas, Físicas y Naturales* **99** (2) (2005), 195–210. Discusses key events in the development of the concept of Riemannian curvature, beginning with Euclid. See the review by James McCoy in *Mathematical Reviews* 2216102 (**2006k**:53002) for specific topics that are discussed. (EM) #34.2.23

Pogliani, L.; Klein, D.J.; and Balaban, A.T. Does science also prefer a ternary pattern? *International Journal of Mathematical Education in Science and Technology* **37** (4) (2006), 379–399. The authors explore some aspects of ternary or tripartite structures for fundamental concepts in several areas of Western thought, arguing that these areas were strongly influenced by Pythagorean number esoterism. They also discuss several three-part structures

fundamental to modern scientific theories on biology, physics, chemistry, and mathematics and speculate whether a cultural preference for tripartite concepts is related to an intrinsic bias in nature favoring ternary patterns. (KP) #34.2.24

Rashed, Roshdi. Les premières classifications des courbes [The earliest classifications of curves], *Physis—Rivista Internazionale di Storia della Scienza (N.S.)* **42** (1) (2005), 1–64. Describes the history of the concept of curve and historical attempts to classify different kinds of curves from classical mathematics up to the emergence of calculus. (KP) #34.2.25

Schärlig, Alain. *Compter du bout des doigts* [*Counting with one's fingertips*], Lausanne: Presses Polytechniques et Universitaires Romandes, 2006, 294 pp. An illustrated history of numeration, simple arithmetic, and rudimentary computational aids. The work contains descriptions and illustrations of the way in which arithmetic was performed in Greek and Roman times. See the review by A.D. Booth in *Mathematical Reviews* 2226396 (**2006m**:01003). (GSS) #34.2.26

Schubring, Gert, ed. *Special Issue: History of Teaching and Learning Mathematics*, *Paedagogica Historica. International Journal of the History of Education* **42** (4–5) (2006). This special issue presents the proceedings of the Thematic Study Group 29 at ICME 10 in Copenhagen. Its contents are listed here separately as #34.2.45; #34.2.66; #34.2.101; #34.2.102; #34.2.103; #34.2.111; #34.2.119; and #34.2.131. (SED) #34.2.27

Schubring, Gert. Researching into the history of teaching and learning mathematics: The state of the art, *Paedagogica Historica* **42** (2006), 665–677. *See* #34.2.27. #34.2.28

Sharma, Anita. *See* #34.2.29.

Sharma, V.K.; Sharma, Anita. A history of determining values of π from ancient to modern period, *Journal of Natural and Physical Sciences* **16** (1–2) (2002), 45–54. A discussion of the determination of values of π, from 476 to the modern day. See the review by Cristina Irimia in *Zentralblatt MATH* 1099.01001. (VA/SED) #34.2.29

Song, Fangmin. *See* #34.2.31; #34.2.32; #34.2.33; #34.2.34; and #34.2.35.

Spagnolo, Sergio. *See* #34.2.8.

Stigler, Stephen. Fisher in 1921, *Statistical Science* **20** (1) (2005), 32–49. This paper examines a number of documents that Ronald A. Fisher published before his influential 1921 article on mathematical statistics in order to shed new light on the origin of that work. (LM) #34.2.30

Weinberg, David A. *See* #34.2.15.

Xiao, Xian. *See* #34.2.31; #34.2.32; #34.2.33; #34.2.34; and #34.2.35.

Zhu, Wujia; Xiao, Xian; Song, Fangmin; and Gu, Hongfang. An outlook on infinity. I. Historical studies and remarks [in Chinese], *Journal of Nanjing University of Aeronautics and Astronautics* **34** (2002) (2), 101–107. The first of a five-part series on the current and historical issues surrounding the problem of infinity. The other parts are listed here separately as #34.2.32; #34.2.33; #34.2.34; and #34.2.35. (SED) #34.2.31

Zhu, Wujia; Xiao, Xian; Song, Fangmin; and Gu, Hongfang. An outlook on infinity. II. From Hausdorff's intuition and Poincaré's famous remark to Brouwer's theater [in Chinese], *Journal of Nanjing University of Aeronautics and Astronautics* **34** (2002) (3), 201–205. See #34.2.31 for an abstract of this series. #34.2.32

Zhu, Wujia; Xiao, Xian; Song, Fangmin; and Gu, Hongfang. An outlook on infinity. III. "Every" and "all" [in Chinese], *Journal of Nanjing University of Aeronautics and Astronautics* **34** (2002) (3), 206–210. See #34.2.31 for an abstract of this series. #34.2.33

Zhu, Wujia; Xiao, Xian; Song, Fangmin; and Gu, Hongfang. An outlook on infinity. IV. Natural number system and infinity axiom [in Chinese], *Journal of Nanjing University of Aeronautics and Astronautics* **34** (2002) (4), 307–311. See #34.2.31 for an abstract of this series. #34.2.34

Zhu, Wujia; Xiao, Xian; Song, Fangmin; and Gu, Hongfang. An outlook on infinity. V. An axiomatic set theory APAS for holding the actual infinity and the potential infinity concurrently [in Chinese], *Journal of Nanjing University of Aeronautics and Astronautics* **34** (2002) (4), 312–317. See #34.2.31 for an abstract of this series. #34.2.35

India

Arora, Virendra; and Handa, Nidhi. Katyayna Sulb-Sutra, *Journal of Natural and Physical Sciences* **18** (2) (2004), 89–96. Discusses some of the geometrical constructions in the ancient Indian ritual geometry text *Kātyayana-śulba-sūtra*. See the review by T. Thrivikraman in *Zentralblatt MATH* 1097.01007. (KP) #34.2.36

Bana, Yogita. *See* #34.2.40.

Chand, Ramesh. *See* #34.2.41.

Handa, Nidhi. *See* #34.2.36.

Hayashi, Takao. A Sanskrit mathematical anthology, *SCIAMVS* **7** (2006), 175–211. Translation of, and commentary on, a Sanskrit compilation of problems related to prices, buying and selling, and circular figures. At least part of the treatise may be authored by the previously unknown Jayaśekhara. (GVB) #34.2.37

Keller, Agathe. *Expounding the mathematical seed. Vol. 1. The translation. A translation of Bhaskara I on the mathematical chapter of the Aryabhatiya. Vol. 2. The supplements. A translation of Bhaskara I on the mathematical chapter of the Aryabhatiya. Science Networks. Historical Studies 30 & 31*, Basel: Birkhäuser, 2006. Vol. 1: iii+172 pp., hardback. Vol. 2: xi+240 pp., hardback. From the review by Benno van Dalen in *Zentralblatt MATH* 1099.01004; 1099.01005: "This two-volume book contains an English translation with extensive explanations of the mathematical chapter of the earliest extant mathematical and astronomical work in Sanskrit prose, namely the *Aryabhatiyabhasya* by Bhaskara I, written in AD 629. This is a commentary on the fifth century astronomical treatise, the *Aryabhatiya*, by Aryabhata." (VA) #34.2.38

Pandey, G.S. Calendar systems in ancient India, *Journal of Natural and Physical Sciences* **18** (1) (2004), 11–30. A description of various calendar systems used in traditional Indian astronomy, with the historical development of the widespread Vikrama Saṃvat era. See the review by T. Thrivikraman in *Zentralblatt MATH* 1097.01008. (KP) #34.2.39

Sharma, V.K.; and Bana, Yogita. Some geometrical constructions from Baudhayana Sulba Sutra, *Journal of Natural and Physical Sciences* **18** (1) (2004), 57–67. Explains eight of the geometrical constructions used for laying out brick fire-altars in the *Baudhayana-śulba-sūtra*, apparently the oldest Indian text on ritual geometry. See the review by T. Thrivikraman in *Zentralblatt MATH* 1097.01009. (KP) #34.2.40

Singh, S.L.; and Chand, Ramesh. Bhaskara's methods for computing mean planetary positions, *Journal of Natural and Physical Sciences* **16** (1–2) (2002), 5–14. Explains, in a manner suitable for modern astronomy students, some of the methods used by the 12-century Indian astronomer Bhāskara for computing planetary positions. See the review by T. Thrivikraman in *Zentralblatt MATH* 1097.01010. (KP) #34.2.41

China

Cullen, Christopher. The *Suàn shù shū*, "Writings on reckoning": Rewriting the history of early Chinese mathematics in the light of an excavated manuscript, *Historia Mathematica* **34** (1) (2007), 10–44. This article discusses the ancient Chinese collection of mathematical writings, the *Suàn shù shū*. It also discusses the relation of this collection, which was recovered from a tomb whose closure has been dated as 186 BC, with other ancient works, such as the *Jiŭ zhāng suàn shù*, the so-called "Nine Chapters." (SED) #34.2.42

Luo, Jian-jin. *See* #34.2.44.

Martzloff, Jean-Claude. *A History of Chinese Mathematics*, New York: Springer-Verlag, 2006, paperback, 485 pp. An English paperback version of the 1987 French original. The English hardback edition was abstracted here as #24.2.128. See the review by Fernando Gouvêa at *MAA Online* [http://www.maa.org/reviews/brief_oct06.html]. (SED) #34.2.43

Yan, Xue-min; and Luo, Jian-jin. Catalan numbers: A geometric model, *Journal of Zhengzhou University. Natural Science Edition* **38** (2) (2006), 20–24. Describes the work of the Mongolian mathematician and astronomer Ming Antu in the Qing Dynasty (17th century) on a geometric model containing the first known occurrence of what are now called Catalan numbers. (KP) #34.2.44

Islamic/Islamicate

Abdeljaouad, Mahdi. Issues in the history of mathematics teaching in Arab countries, *Paedagogica Historica* **42** (2006), 629–664. *See* #34.2.27. #34.2.45

Abdeljaouad, Mahdi, ed. *Actes du 8ème Colloque Maghrébin sur l'Histoire des Mathématiques Arabes*, Tunis: Association Tunisienne des Sciences Mathématiques, 2006, 364 pp. This volume presents the proceedings from the eighth Maghrebian colloquium on the history of Arabic mathematics held on 18–20 December 2004 in Tunis. The contents are listed here separately as #34.2.47; #34.2.48; #34.2.50; #34.2.51; #34.2.52; #34.2.53; #34.2.54; #34.2.55; #34.2.56; #34.2.57; #34.2.58; #34.2.59; #34.2.60; #34.2.61; #34.2.63; #34.2.65; #34.2.67; #34.2.68; and #34.2.69. (SED) #34.2.46

Abdeljaouad, Mahdi. 800th anniversary of the death of Ibn al-Yāsamīn, in #34.2.46, pp. 1–30. #34.2.47

Alkhateeb, Haitham. *See* #34.2.64.

Ausejo, Eléna; Cobos, José M.; and Hormigón, Mariano. Contributions à la connaissance des Sciences sous la Taifa de Badajoz, in #34.2.46, pp. 31–42. #34.2.48

Ausejo, Eléna. *See also* #34.2.51.

Bagheri, Mohammad. Kūshyār ibn Labbān's glossary of astronomy, *SCIAMVS* **7** (2006), 145–174. Edition, translation, and commentary on a section of this 11th-century Iranian scientist's astronomical handbook, containing a glossary of astronomical terms. (GVB) #34.2.49

Bebbouchi, Rachid. Algébre et Algorithme, même source mais pas même parcours, in #34.2.46, pp. 43–48. #34.2.50

Benito, Mariano; Ausejo, Elena; and Hormigón, Mariano. Le calcul des problèmes d'héritages en *Al-Andalus*, in #34.2.46, pp. 49–64. #34.2.51

Bentaleb, Farès. Ibn al-Hā'im et ses travaux mathématiques in #34.2.46, pp. 65–82. #34.2.52

Bouzari, Abdelmalek. Les coniques de *l'Istikmāl* d'al-Mu'taman dans la rédaction d'Ibn Sartāq in #34.2.46, pp. 83–92. #34.2.53

Caianiello, Eva. Interest and usury in Fibonacci's *Liber Abbaci*. A first comparison of the mathematical tradition of the Western Muslim world, in #34.2.46, pp. 93–122. #34.2.54

Calvo, Emilia and Puig, Roser. Andalusian improvements in the field of astronomical instruments. Materials and perspectives, in #34.2.46, pp. 123–130. #34.2.55

Cobos, José M. *See* #34.2.48.

Comes, Mercè; and Rius, Mònica. Finding the *Qibla* in the Islamic Mediterranean, in #34.2.46, pp. 131–138. #34.2.56

De Young, Gregg. Arabic into Latin. The case of Euclid's *Elements*, in #34.2.46, pp. 139–154. #34.2.57

Djebbar, Ahmed. Les traditions mathématiques d'al-Andalus et du Maghreb en Orient: L'exemple d'Ibn al-Majdī, in #34.2.46, pp. 155–184. #34.2.58

Guergour, Youcef. Al-Mu'taman Ibn Hūd (m. 1085) et le théorème de Pythagore. Ses sources et ses prolongements, in #34.2.46, pp. 185–198. #34.2.59

Harbili, Anissa. Le *Takhṣīṣ* d'al-Ghurbī. Un commentaire inédit du *Talkhīṣ* d'Ibn al-Bannā in #34.2.46, pp. 199–216. #34.2.60

Hormigón, Mariano. *See* #34.2.48; and #34.2.51.

Høyrup, Jens. Questions to the historiography of Arabic mathematics derived from abbaco mathematics, in #34.2.46, pp. 217–232. #34.2.61

Iqbal, Muzaffar. *See* #34.2.62.

King, David A. *In Synchrony with the Heavens. Studies in Astronomical Timekeeping and Instrumentation in Medieval Islamic Civilization. Vol. 2. Instruments of Mass Calculation. Studies X–XVIII*, Leiden: Brill, 2005, lxxvi+1066 pp. This is the second of two volumes comprising an 18-part study of topics in astronomical and chronometric applications of mathematics in the Islamic world. The first volume (abstracted here as #32.3.131) treats astronomical timekeeping and regulating the times of Muslim prayer. The second pertains to Islamic astronomical instruments; it focuses chiefly on the most important of these, the astrolabe, but also discusses quadrants and horary dials. The instruments described range in provenance from Spain to India and from the 8th century (CE) to the 17th. See the review by Muzaffar Iqbal of both volumes in *Islam and Science*, summer 2006. (KP) #34.2.62

Laabid, Ezzaim. Le *ḥisāb ad-dawr* dans la tradition mathématique des héritages en pays d'Islam, in #34.2.46, pp. 233–246. #34.2.63

Oaks, Jeffrey A.; and Alkhateeb, Haitham M. Simplifying equations in Arabic algebra, *Historia Mathematica* **34** (1) (2007), 45–61. Through reviewing medieval mathematics texts, the authors examine the uses of the words *jabr* (restoration), *muqābala* (confrontation), *ikmāl* (completion), and *radd* (returning) in Arabic algebra. They maintain that the words were used as nontechnical terms for goals rather than technical terms for operations. (SED) #34.2.64

Puig, Roser. *See* #34.2.55.

Ramírez Martínez, Ángel; and Usón Villalba, Carlos. L'art mudéjar aragonais. Algèbre et Géométrie modelés en brique, bois et plâtre, in #34.2.46, pp. 247–264. #34.2.65

Ruis, Mònica. *See* #34.2.56.

Schubring, Gert. Les processus d'algébrisation comme déterminants de l'histoire des mathématiques, in #34.2.46, pp. 265–274. #34.2.66

Schwartz, Randy K. Issues in the origin and development of Ḥisāb al-Khata'ayn (Calculation by double false position), in #34.2.46, pp. 275–296. #34.2.67

Souissi, Mohamed. Essais arabes de solution de problèmes "solides" de géométrie, in #34.2.46, pp. 297–306. #34.2.68

Usón Villalba, Carlos. *See* #34.2.65.

Zemmouli, Moussa. Les mathématiques dans la classification des sciences à travers *al-Uqnūm* d'Abu Zayd al-Fāsī (17^{e} siècle) in #34.2.46, pp. 307–322. #34.2.69

Antiquity

Jones, Alexander. The Keskintos astronomical inscription: Text and interpretations, *SCIAMVS* **7** (2006), 3–41. A new edition and study of an inscription on planetary astronomy from around the time of Hipparchus. This inscription provides a rare opportunity to reconstruct Greek astronomy before Ptolemy. (GVB) #34.2.70

Miller, Mitchell. Figure, ratio, form: Plato's five mathematical studies, *Apeiron* **32** (4) (1999), 73–88. This paper investigates the philosophical intentions of Plato's sequence of mathematical studies as shown in the *Republic* 522–531. See the review by Benno Artmann in *Zentralblatt MATH* 1098.01500. (LM) #34.2.71

Papaodysseus, Constantin. Identification of geometrical shapes in paintings and its application to demonstrate the foundations of geometry in 1650 B.C., *IEEE Transactions on Image Processing* **14** (7) (2005), 862–873. The author analyze the 1650 B.C. wall paintings from the prehistoric settlement on Thera. They claim that the spirals depicted in those paintings correspond with a remarkable precision to the spirals of Archimedes, parts of ellipses and other regular geometrical shapes. See the review by M.S. Burgin in *Mathematical Reviews* 2170261 (**2006m**:94007). (GSS) #34.2.72

Saito, Ken. A preliminary study in the critical assessment of diagrams in Greek mathematical works, *SCIAMVS* **7** (2006), 81–144. Paying careful critical attention to diagrams in manuscripts of historical mathematical works can

illuminate the textual tradition and provide additional insights. A computer program to aid analysis is provided. (GVB) #34.2.73

Sidoli, Nathan. The sector theorem attributed to Menelaus, *SCIAMVS* **7** (2006), 43–79. An analysis of the textual tradition of Menelaus's Theorem in spherical trigonometry leads to the suggestion that the theorem might predate Menelaus and in fact go back to Hipparchus. (GVB) #34.2.74

Middle Ages

Busard, H.L.L. *Campanus of Novara and Euclid's Elements. Vols. I, II*, Wiesbaden: Franz Steiner Verlag GmbH, 2005, viii+768 pp. Section 1 of this book contains a survey of the Arabic–Latin and Greek–Latin translations of the *Elements* and derivatives. Section 2 concerns Campanus and his works. Section 3 contains "Euclides, *Elementa*," and a second volume entitled "Notes and Commentaries" by Campanus. This study of Campanus of Novara and Euclid's *Elements* provides a valuable treatment of the earlier years of an important interval on the time-line of history. See the review by Richard L. Francis in *Mathematical Reviews* 2219456 (**2007a**:01002). (GSS) #34.2.75

Labarthe, Marie-Hélène. Les règles de compagnie, dans les premières arithmétiques imprimées des Espagnes: De la règle marchande à l'outil mathématique [Rules governing business partnerships in the first books of arithmetic printed in the Spanish kingdoms: From business rules to mathematical tools], *Revue d'Histoire des Mathématiques* **11** (2) (2005), 257–313. Discusses the use in medieval and Renaissance commercial practices of so-called "company rules" employing proportional division to allocate profits and losses in business partnerships. See the review by Cristina Irimia in *Zentralblatt MATH* 1099.01008. (KP) #34.2.76

Lamassé, Stéphane. Une utilisation précoce de l'algèbre en France au XVe siècle. Note sur le manuscrit 1339 de la Bibliothèque nationale de France [An early use of algebra in fifteenth-century France. Note on Manuscript 1339 of the Bibliothèque Nationale de France], *Revue d'Histoire des Mathématiques* **11** (2) (2005), 239–255. This manuscript, which pre-dates by some 30 years the proto-algebraic *Triparty* of Nicholas Chuquet, uses an algebraic method to solve some of its examples, implying an earlier date than previously thought for the introduction of algebra in French works on commercial arithmetic. (KP) #34.2.77

Peden, A.M. *Abbo of Fleury and Ramsey: Commentary on the Calculus of Victorius of Aquitaine*, London: Oxford University Press, 2003, liv+159 pp. This book contains critical editions of the *Calculus* of Victorius of Aquitaine (fl. ca. 450) and of the *Commentary* written by Abbo (ca. 945–1004). The introduction describes Abbo's life and works. The *Calculus* of Victorius contains a series of multiplication tables which could be used as an aid for calculations on the abacus. It also includes nine tables of addition, subtraction, fractions, and squares, as well as commentaries on two of the tables and notes on weights and measures. See the review by Julio Samsó-Moya in *Mathematical Reviews* 2210051 (**2007a**:01004). (GSS) #34.2.78

Ulivi, Elisabetta. Raffaello Canacci, Piermaria Bonini and the abacists of the Grassini family, [in Italian] *Bollettino di Storia delle Scienze Matematiche* **24** (2) (2006), 125–212. A historical account of the activities and personal history of five abacists – Canacci, Bonini, Grassini, and his three sons Antonio, Giovanni Maria, and Marco between 1450 and 1520, including texts of most of the relevant documents. See the review by Warren Van Egmond in *Mathematical Reviews* 2210414 (**2006k**:01006). (EM) #34.2.79

See also: #34.2.54; and #34.2.82.

Renaissance

Freguglia, Paolo. *La geometria fra tradizione e innovazione. Temi e metodi geometrici nell'età della rivoluzione scientifica, 1550–1650 [Geometry between tradition and innovation. Geometric topics and methods in the age of scientific revolution, 1550–1650]*, Turin: Bollati Boringhieri, 1999, 244 pp. A survey of the geometrical work of the leading mathematicians of the early "Scientific Revolution," from Galileo to Newton. Contents: 1. Logic and method from the sixteenth to the seventeenth century; 2. Some fundamental aspects of classical geometry in its Renaissance versions; 3. Geometrico-synthetic methods from the sixteenth to the seventeenth century; 4. Geometry and algebra in Descartes; 5. Treatises on perspective. (KP) #34.2.80

Galilei, Galileo. *Mechanics. Critical edition by R. Gatto* [In Italian and Latin]. Florence: Leo S. Olschki Editore, 2002, ccxv+167 pp. From the review by Boris M. Schein in *Zentralblatt MATH* 1099.01007: "This is a critical edition of the celebrated treatise of Galileo (published under this title for the first time in 1891). Since that time no new editions of this treatise appeared (except new publications of the 1891 edition), although another version was found. The editor included two versions: the so-called 'brief version' followed by the 'long version.' A significant part of this book is taken by a 3-page-long foreword followed by a 207-page-long scholarly introduction, both of them written by the editor." (VA) #34.2.81

Yang, Baoshan. *See* #34.2.82.

Zhao, Jiwei; and Yang, Baoshan. On Cardano's "golden rule," *Journal of Northwest University. Natural Sciences Edition* **35** (3) (2005), 370–372. From the review by J.-C. Martzloff in *Zentralblatt MATH* 1099.01009: "This is a modern mathematical justification of a process of approximation of polynomial roots found in Cardano's *Ars Magna*." (VA) #34.2.82

See also: #34.2.76.

17th century

Friesecke, Gero; and Wehrstedt, Jan Christof. An elementary proof of the Gregory–Mengoli–Mercator formula, *Mathematical Intelligencer* **28** (3) (2006), 4–5. The proof of the alternating harmonic series, $1-\frac{1}{2}+\frac{1}{3}-\frac{1}{4}+-\cdots=\log 2$, probably originating in the 17th century, is usually based on material from an undergraduate calculus course. Here the authors develop a proof without appealing to a precise theory of limits that utilizes standard definitions of e and arguments that are explicit manipulations of finite sums and products. (FA) #34.2.83

Grayling, A.C. *Descartes: The Life and Times of a Genius*, New York: Walker and Company, 2005, hardcover, 301 pp. This general history of Descartes includes accounts of his interactions with Mersenne, Desargues, Fermat, and Pascal. See the review by Peter Ruane at *MAA Online* [http://www.maa.org/reviews/DescartesGrayling.html]. (SED) #34.2.84

Kvasz, Ladislav. The mathematisation of nature and Newtonian physics, *Philosophia Naturalis* **42** (2) (2005), 183–211. The author suggests an analogy between the use of theoretical "forces" to mediate empirical quantities in Newtonian physics and the use of "unknowns" to represent parameters in the algebra of Viète. (KP) #34.2.85

Palmieri, Paolo. "Spuntar lo scoglio più duro": Did Galileo ever think the most beautiful thought experiment in the history of science? *Studies in History and Philosophy of Science* **36** (2) (2005), 223–240. Argues that not only did Galileo probably never drop different-sized rocks off the Leaning Tower of Pisa to establish the principle that all bodies fall at the same speed, but moreover he probably did not even conduct the equivalent thought experiment. The slick presentation of the thought experiment on falling bodies in the *Two New Sciences*, the author contends, obscures Galileo's own struggle to understand these concepts in a consistent way, a struggle revealed more clearly in his hitherto neglected manuscript work *Postils to Rocco*. (KP) #34.2.86

Seck, Friedrich. Gelehrtenbriefe zu Keplers Zeit [Scientific letters in Kepler's age], in Boockmann, Friederike, ed., *Miscellanea Kepleriana. Festschrift for Volker Bialas on the Occasion of his 65th Birthday* (Augsburg: ERV Dr. Erwin Rauner Verlag, 2005), pp. 205–227. From the review by Radoslav M. Dimitric in *Zentralblatt MATH* 1099.01010: "The paper is an examination of formal aspects of scientific letter writing from Kepler's and Schickard's correspondence. This is based on several hundreds of letters written to Kepler, beginning with a letter by the Bavarian chancellor Johann Georg Herwart von Hohenburg, dated March 10, 1598 ... This analysis certainly adds to better understanding of the culture of the times." (VA) #34.2.87

Wehrstedt, Jan Christof. *See* #34.2.83.

See also: #34.2.44 and #34.2.80.

18th century

Barbut, Marc; Rohrbasser, Jean-Marc; and Véron, Jacques. Lambert et la loi de survie [Lambert and the life table], *Mathématiques et Sciences Humaines* **171** (2005), 51–85. An account of J.H. Lambert's research in the field

of mathematical demography. See the review by Solomon Marcus in *Mathematical Reviews* 2169852 (**2006k**:01016) which includes Lambert's (1765) equation for processing mortality data. (EM) #34.2.88

Bézout, Etienne. *General Theory of Algebraic Equations. Translated from the 1779 French original by Eric Feron*, Princeton, NJ: Princeton University Press, 2006, xxiv+337 pp. Bézout's *General Theory of Algebraic Equations* is divided into two parts, called Book I and Book II. Book I deals with polynomials in several variables, where Bézout said that a polynomial of degree d is complete if every possible monomial of degree less than or equal to d appears in the polynomial with a nonzero coefficient. He wanted to solve a system of n complete polynomial equations in n variables. This part includes Bézout's Theorem. Book II deals with incomplete equations. This includes "a new elimination method for first-order equations with an arbitrary number of unknowns" where he presented the method which is known today as Cramer's rule. See the review by Cícero Fernandes de Carvalho in *Mathematical Reviews* 2215193 (**2007a**:14001). (GSS) #34.2.89

Feron, Eric. *See* #34.2.89.

Ferraro, Giovanni. Convergence and formal manipulation in the theory of series from 1730 to 1815, *Historia Mathematica* **34** (1) (2007), 62–88. Discusses Euler's development of a formal approach to manipulating series and its subsequent use to 1815. (SED) #34.2.90

Rohrbasser, Jean-Marc. *See* #34.2.2.

Schneider, Ivo. De Moivre's central limit theorem and its possible connections with Bayes' essay, in Susan Splinter, et al., eds., *Physica et historia. Festschrift for Andreas Kleinert on the occasion of his 65th birthday* (Halle/Saale: Deutsche Akademie der Naturforscher Leopoldina, 2005), pp. 155–161. This paper analyzes Bayes' possible relations and personal acquaintance with De Moivre. See the review by O.B. Cheinine in *Zentralblatt MATH* 1098.01006. (LM) #34.2.91

Véron, Jacques. *See* #34.2.2.

Watanabe, Junsei. A Manchu manuscript on arithmetic owned by Tôyô Bunko: *suwan fa yuwan ben bithe*, *SCIAMVS* **6** (2005), 177–264. From the review by J.-C. Martzloff in *Zentralblatt MATH* 1099.01012: "The present paper presents an overall analysis and a romanisation of the text of this rare Manchu manuscript, together with an annotated English translation of its preface and of some other sections." (VA) #34.2.92

See also: #34.2.95; and #34.2.113.

19th century

Anderson, Ronald. Augustus De Morgan's inaugural lecture of 1828, *Mathematical Intelligencer* **28** (2006), 16–28. This reproduction of De Morgan's introductory lecture at the opening of the mathematical classes at the University of London, now University College London, given by its first Professor of Mathematics, appears here in print for the first time. De Morgan's central point is that mathematics is unique in developing the reasoning power of the mind, which is valuable for other disciplines as well, and that his job is to promote its development. (FA) #34.2.93

Benci, Vieri. Counting the infinite: Old and new ideas [in Italian], in #34.2.7, pp. 1–20. The introduction of the new theory of numerosities for counting infinite sets that is related not only to Cantor's theory of ordinals and cardinals, which is discussed, but to nonstandard analysis, which is briefly mentioned. See the review by Perry Smith in *Mathematical Reviews* 2216631 (**2007b**:03071) for related references. (EM) #34.2.94

Biryukov, B.V.; and Kuzicheva Z.A. Foreign schools of philosophy of mathematics and their reflection in philosophical-logical and historical-mathematical thought in Russia of the 18th to 20th century [in Russian], in Karpenko, A.S., ed., *Logical investigations. 12.* (Moscow: Nauka, 2005), pp. 67–108. From the review by Roman Murawski in *Zentralblatt MATH* 1100.01007: "The paper is devoted to the discussion of the development of researches in logic and philosophy of mathematics in Russia in the period from the 18th century till the 20th century. The influence of foreign schools and ideas is considered. The following persons and their work and ideas are presented: L. Euler, N.I. Lobatchevsky, A.V. Vasilev, A.I. Vviedienskij, V.V. Bobynin, V.F. Kagan, V.P. Cheremetevskij, P.S. Poretsky, P.E. Leykfield, I.I. Yagodinsky, S.I. Povarnin." (VA) #34.2.95

Carvalho e Silva, Jaime. The teaching of mathematics in the University of Coimbra in the 19th century, in Bento, António J.G.; Caetano, António M.; Moura, Susana D.; and Neves, Júlio S., eds., *The J.A. Sampaio Martins Anniversary Volume* (Universidade de Coimbra, Coimbra, 2004), pp. 109–119. A discussion of the state of mathematics at the University of Coimbra, Portugal, during the 19th century. (SED) #34.2.96

Cercignani, Carlo. *Ludwig Boltzmann. The Man Who Trusted Atoms*, with a foreword by Sir Roger Penrose, Oxford: Oxford University Press, 2006, xvi+329 pp. A paperback version of this biography of Boltzmann, abstracted here as #27.4.30. (SED) #34.2.97

Cook, Simon. Minds, machines and economic agents: Cambridge receptions of Boole and Babbage, *Studies in History and Philosophy of Science* **36** (2) (2005), 331–350. Describes how the calculating engines of Babbage and the logic of Boole influenced the ideas of scholars in the Cambridge Moral Sciences concerning mechanical interpretations of the human mind and of humans as economic agents. (KP) #34.2.98

Despeaux, Sloan E. Launching mathematical research without a formal mandate: The role of university-affiliated journals in Britain, 1837–1870, *Historia Mathematica* **34** (2007), 89–106. The author explores the conditions facing junior mathematicians who wanted to launch research in 19th-century Britain in a system of higher education that provided no formal mandate for students to conduct research. This article also discusses the role of the university-affiliated mathematical journals that provided encouragement and direction for research in the period 1837–1870. (LM) #34.2.99

Gandon, Sébastien. Pasch entre Klein et Peano: Empirisme et idéalité en géométrie [Pasch between Klein and Peano: Empiricism and ideality in geometry], *Dialogue* **44** (4) (2005), 653–692. Discusses the historical background of Moritz Pasch's 1882 axiomatization of elementary geometry, the *Vorlesungen über neuere Geometrie*, and attempts to reconcile its axiomatic nature with Pasch's claims for its empirical truth. The author argues that Pasch's divergence from the Hilbertian axiomatic approach is the result not of a logically inconsistent theory, but rather of the requirements of a broader philosophical viewpoint. (KP) #34.2.100

Giacardi, Livia. From Euclid as textbook to the Giovanni gentile reform (1867–1923): Problems, methods and debates in mathematics teaching in Italy, *Paedagogica Historica* **42** (2006), 587–613. *See* #34.2.27. #34.2.101

Karp, Alexander. "Universal responsiveness" or "splendid isolation?" Episodes from the history of mathematics education in Russia, *Paedagogica Historica* **42** (2006), 615–628. *See* #34.2.27. #34.2.102

Kastanis, I.; and Kastanis, N. The Transmission of mathematics into Greek education, 1800–1840: From individual initiatives to institutionalization. *Paedagogica Historica* **42** (2006), 515–534. *See* #34.2.27. #34.2.103

Kastanis, N. *See* #34.2.103.

Krengel, Ulrich. Von der Bestimmung von Planetenbahnen zur modernen Statistik: Carl Friedrich Gauß—Werk und Wirkung [From the determination of planetary orbits to modern statistics: Carl Friedrich Gauss—work and impact], *Mathematische Semesterberichte* **53** (1) (2006), 1–16. Explores Gauss's role in the early history of concepts and methods in statistics, and his influence on their later development. (KP) #34.2.104

Lützen, Jesper. *Mechanistic Images in Geometric Form. Heinrich Hertz's Principles of Mechanics*, Oxford: Oxford University Press, 2005, xiv+318 pp. An examination of the book of the title and its reception. See the review by Ivor Grattan-Guinness in *Mathematical Reviews* 2189004 (**2006k**:70001) for a discussion of the main themes into which the chapters are divided, and a critique of the author's interpretation of the work of Newton and Laplace. (EM) #34.2.105

McCarty, D.C. Problems and riddles: Hilbert and the du Bois-Reymonds, *Synthese* **147** (1) (2005), 63–79. The paper shows connections between the famous Hilbert problems stated in 1900 and the debate initiated by the physiologist Emil du Bois-Reymond in his 1872 lecture, "On the limits of the knowledge of nature," in which he tried to show that our epistemic capacity is limited and inherently incomplete. While Hilbert explicitly opposed du Bois-Reymond and Emil du Bois-Reymond's younger brother, Paul, with regard to mathematics and physical sciences, he endorsed some of du Bois-Reymond's skeptical conclusions concerning human knowledge. See the review by Henri Volken *Mathematical Reviews* 2182642 (**2006m**:03010). (GSS) #34.2.106

Pascual Gainza, Pere. The geometry of surfaces: An approximation of Gauss's mathematical "style" [in Catalan], *Butlletí de la Societat Catalana de Matemàtiques* **20** (2) (2005), 137–164. The author comments on the results of the *Disquisitiones generales circa superficies curvas* (1828) and its strong influence on the subsequent development of fundamental ideas in differential geometry. See the review by Jaime Muñoz Masqué *Mathematical Reviews* 2225743 (**2007a**:53002). (GSS) #34.2.107

Penrose, Sir Roger. *See* #34.2.97.

Pepe, Luigi. The volunteers of the battle of Curtatone and Montanara and the engagement of mathematicians in Italian society and culture [in Italian], in #34.2.7, pp. 141–155. #34.2.108

Petsche, Hans-Joachim. *Graßmann* [in German], Basel: Birkhäuser Verlag, 2006, xxii+326 pp. This book supplies a much needed biography of Grassmann along with a discussion of his mathematical work and his philosophical views. It also includes the influence of Grassmann's father, his brother, and Friedrich Schleiermacher on Grassmann's work. See the review by Karl-Heinz Schlote in *Mathematical Reviews* 2207629 (**2006m**:01022). (GSS) #34.2.109

Schlimm, Dirk. *See* #34.2.110.

Sieg, Wilfried; and Schlimm, Dirk. Dedekind's analysis of number: Systems and axioms, *Synthese* **147** (1) (2005), 121–170. The authors present an interpretation of the evolution of Richard Dedekind's approach to the foundations of the theory of numbers from his 1854 *Habilitationsrede* to his 1888 essay *Was sind und was sollen die Zahlen*? See the review by María Cerezo in *Mathematical Reviews* 2182644 (**2006m**:01014). (GSS) #34.2.110

Skyrms, Brian. *See* #34.2.113.

Smid, Harm J. Between the market and the state, *Paedagogica Historica* **42** (2006), 575–586. Discusses mathematics teaching in the Netherlands during the middle third of the nineteenth century. *See* #34.2.27. (SED) #34.2.111

Waldegg, Guillermina. Bolzano's approach to the paradoxes of infinity: Implications for teaching, *Science and Education* **14** (6) (2005), 559–577. From the review by Roman Murawski in *Zentralblatt MATH* 1100.01003: "In the paper excerpts of Bolzano's *Paradoxes of Infinity* (1851) are analyzed. It is claimed that his approach to the concept of actual infinity is more intuitive than that of Georg Cantor. Implications for teaching students about infinity are considered." (VA) #34.2.112

Zabell, S.L. *Symmetry and its discontents. Essays on the history of inductive probability. With a preface by Brian Skyrms*, Cambridge Studies in Probability, Induction, and Decision Theory, New York, NY: Cambridge University Press, Year, 2005, 279 pp., hardcover. From the review by O.B. Cheinine in *Zentralblatt MATH* 1100.01001: "This is a valuable collection of the author's 11 contributions (1982–1997) [to the philosophy of probability] which are sufficiently documented and contain many quotations (also from archival sources)." (VA) #34.2.113

Zahar, Elie. *Poincaré's Philosophy: From Conventionalism to Phenomenology*, Chicago, IL: Open Court, 2001, viii+264 pp. A discussion of Poincaré's philosophical stances. See the review by Teun Koetsier in *Zentralblatt MATH* 1097.00005. (SED) #34.2.114

See also: #34.2.90; #34.2.119; #34.2.140; and #34.2.161.

20th century

Antman, Stuart S. Theodore von Kármán, in #34.2.146, pp. 373–382. #34.2.115

Bárány, Imre. Discrete and convex geometry, in #34.2.146, pp. 427–454. #34.2.116

Beckman, Bengt. *Arne Beurling und Hitlers Geheimschreiber. Schwedische Entzifferungserfolge im 2. Weltkrieg* [*Arne Beurling and Hitlers Geheimschreiber. The success of Swedish codebreaking during World War II*]. Translated from the Swedish by Kjell-Ove Widman, Berlin: Springer, 2006, xix+323 pp., paperback. A German translation of Beckman's account of Swedish codebreakers during the Second World War. The English translation was abstracted here as #30.4.18. See the review by Ralph-Hardo Schulz in *Zentralblatt MATH* 1099.01016. (VA) #34.2.117

Bierstedt, Klaus D. On the mathematical work of Klaus Floret, *Note di Matematica* **25** (1) (2005/06), 1–28. Describes the life, career, and mathematical work of Klaus Floret, particularly his contributions to important topics in functional analysis. (KP) #34.2.118

Bjarnadóttir, K. From isolation and stagnation to "modern" mathematics in Iceland: A reform or confusion? *Paedagogica Historica* **42** (2006), 547–558. *See* #34.2.27. #34.2.119

Bognár, M.; and Császár, Á. Topology, in #34.2.146, pp. 9–25. #34.2.120

Brezinski, Claude. La méthode de Cholesky [The method of Cholesky], *Revue d'Histoire des Mathématiques* **11** (2) (2005), 205–238. Chiefly reproduces and describes the hitherto unknown early 20th-century manuscript in the A. Cholesky Collection of the École Polytechnique in which Cholesky explains his method for solving systems of linear equations. The paper also discusses the historical background and impact of the method, and enumerates the other works in the Cholesky Collection. (KP) #34.2.121

Bromberg, Joan Lisa. Device physics vis-à-vis fundamental physics in Cold War America: The case of quantum optics. *Isis* **97** (2) (2006), 237–259. Addresses the question of whether major military funding for US physics research after World War II deflected the content of the research away from the investigation of fundamental problems and towards a more technocratic focus on devices for manipulating nature. The author argues that the leading technology of the period was so scientifically complex that it was impossible in practice to separate the development of devices from the investigation of fundamental problems. The case of quantum optics, and in particular the quantum optician Marlan O. Scully, is adduced as an example of this "multifunctionality" of science research. (KP) #34.2.122

Corry, Leo. On the origins of Hilbert's sixth problem: Physics and the empiricist approach to axiomatization, in Sanz-Solé, Marta, ed., *Proceedings of the International Congress of Mathematicians (ICM)*, Volume III: Invited lectures, Madrid, Spain (Zürich: European Mathematical Society (EMS), 2006), 1697–1718. The sixth of Hilbert's famous 1900 list of 23 "Mathematical Problems" is a programmatic call for the axiomatization of physical sciences. The author shows how the imbrications of mathematics and physics in Hilbert's scientific thought and teaching are at the roots of this programmatic call. See the review by Ülo Lumiste in *Zentralblatt MATH* 1100.01004. (VA) #34.2.123

Cruceanu, Vasile. Research works of Romanian mathematicians on centro-affine geometry, *Balkan Journal of Geometry and its Applications* **10** (1) (2005), 1–5. Describes the influence of Felix Klein on work of G. Tzitzeica, and traces some developments in centro-affine geometry originating from Tzitzeica and the Iasi school founded by O. Mayer, A. Myller, and I. Popa. See the review by Thomas Binder in *Mathematical Reviews* 2209906 (**2006k**:53001). (EM) #34.2.124

Császár, Ákos. Education and research in mathematics, in #34.2.146, pp. 555–562. #34.2.125

Császár, Ákos; and Petz, Dénes. A panorama of the Hungarian real and functional analysis of the 20th century, in #34.2.146, pp. 211–244. #34.2.126

Csiszár, Imre. Stochastics: Information theory, in #34.2.146, pp. 523–535. #34.2.127

Dawson, John W., Jr.; and Sigmund, Karl. Gödel's Vienna, *Mathematical Intelligencer* **28** (3) (2006), 44–55. A description of the activities of Kurt Gödel (1906–2000) in Vienna from 1924, when he arrived from Czechoslovakia to study at the University of Vienna, to 1940, when, aided by John von Neumann and Oscar Veblen, he was able to leave and take up a post at the Institute for Advanced Studies in Princeton. Images of 26 original documents, pictures and maps are included. (FA) #34.2.128

De Mol, Liesbeth. Closing the circle: An analysis of Emil Post's early work, *The Bulletin of Symbolic Logic* **12** (2) (2006), 267–289. E.L. Post anticipated the incompleteness and indeterminability results of Gödel, Church and Turing. His results were only published posthumously. This paper examines Post's own account of the reasons why his work could still be of importance today. The author extracts some insights on Post's method, and it is this method that is worthwhile to study in his early contributions. See the review by Volker Peckhaus in *Mathematical Reviews* 2223924 (**2007a**:03002). (GSS) #34.2.129

Debnath, Lokenath. A brief historical introduction to fractals and fractal geometry, *International Journal of Mathematical Education in Science and Technology* **37** (1) (2006), 29–50. This paper gives a brief historical introduction to fractals, fractal dimension and fractal geometry including some applications of fractals to fracture mechanics and turbulence. See the review by S. Ghosh *Mathematical Reviews* 2202626 (**2006m**:28008). (GSS) #34.2.130

Donoghue, E.F. The Education of Mathematics Teachers in the United States: David Eugene Smith, Early Twentieth-Century Pioneer, *Paedagogica Historica* **42** (2006), 559–573. *See* #34.2.27. #34.2.131

Ehrlich, Philip. The rise of non-Archimedean mathematics and the roots of a misconception. I. The emergence of non-Archimedean systems of magnitudes, *Archive for History of Exact Sciences* **60** (1) (2006), 1–121. This paper is a study of the early history of non-Archimedean mathematics. The author argues that before Robinson's work on infinitesimals there was much significant work on non-Archimedean mathematics of the infinitely large and infinitely small. See the review by Volker Peckhaus in *Mathematical Reviews* 2206281 (**2006m**:01010). (GSS) #34.2.132

Elbert, Árpád; and Garay, Barnabás M. Differential equations: Hungary, the extended first half of the 20th century, in #34.2.146, pp. 245–294. #34.2.133

Erdélyi, Tamás. Extremal properties of polynomials, in #34.2.146, pp. 119–156. #34.2.134

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